

Claims

- [c1] 1. A method for producing a transformed maize plant comprising the steps of:
inserting into a transformable maize tissue a nucleic acid comprising a selectable marker gene to obtain a transformed maize tissue;
culturing the transformed maize tissue for a period of time from about 7 days to about 42 days at a temperature of from about 28°C to about 35°C in a selection media containing a selection compound that inhibits the growth of non-transformed maize tissue and permits the continued growth of transformed maize tissue ;
identifying and selecting transformed maize tissue that grows in the selection media; and
regenerating a transformed maize plant from the selected transformed maize tissue.
- [c2] 2. The method of claim 1 wherein the period of time in the selection media is between about 7 days and about 28 days.
- [c3] 3. The method of claim 1 wherein the selection temperature is from about 30°C to about 34°C.

- [c4] 4. The method of claim 3 wherein the selection temperature is 30°C.
- [c5] 5. The method of claim 3 wherein the selection temperature is maintained for a period of about 1–14 days.
- [c6] 6. The method of claim 1 wherein the selection is performed in a single vessel without replacing or replenishing the selection media during the selection period.
- [c7] 7. The method of claim 1 wherein the selection compound is a herbicide.
- [c8] 8. The method of claim 7 wherein the herbicide is selected from the group consisting of glyphosate, bialophos, phosphinothricin or Basta.
- [c9] 9. The method of claim 1 wherein the nucleic acid is inserted into the maize tissue by inoculation with an Agrobacterium containing said nucleic acid.
- [c10] 10. The method of claim 9 wherein the Agrobacterium inoculation is performed for less than about 20 minutes.
- [c11] 11. The method of claim 9 wherein the Agrobacterium inoculation is performed by contacting the transformable maize tissue with filter paper saturated with the Agrobacterium containing the nucleic acid.

- [c12] 12. The method of claim 11 wherein the filter paper contacts the transformable maize tissue for between about 5 and about 60 minutes.
- [c13] 13. The method of claim 9 where in the Agrobacterium inoculation is performed by spotting the maize tissue with about 1 μ L of Agrobacterium containing the nucleic acid.
- [c14] 14. A transgenic maize plant produced by the method of claim 1.
- [c15] 15. A method for producing a transformed cereal plant comprising the steps of:
inserting into a transformable cereal tissue a nucleic acid comprising a selectable marker gene to obtain a transformed cereal tissue;
culturing the transformed cereal tissue for a period of time from about 7 days to about 42 days at a temperature of from about 28°C to about 35°C in a selection media containing a selection compound that inhibits the growth of non-transformed cereal tissue and permits the continued growth of transformed cereal tissue ;
identifying and selecting transformed cereal tissue that grows in the selection media; and

regenerating a transformed cereal plant from the selected transformed cereal tissue.

- [c16] 16. The method of claim 15 wherein the period of time in the selection media is between about 7 days and about 28 days.
- [c17] 17. The method of claim 15 wherein the selection temperature is from about 30°C to about 34°C.
- [c18] 18. The method of claim 17 wherein the selection temperature is 30°C.
- [c19] 19. The method of claim 17 wherein the selection temperature is maintained for a period of about 1–14 days.
- [c20] 20. The method of claim 15 wherein the selection is performed in a single vessel without replacing or replenishing the selection media during the selection period.
- [c21] 21. The method of claim 15 wherein the selection compound is a herbicide.
- [c22] 22. The method of claim 21 wherein the herbicide is selected from the group consisting of glyphosate, bialophos, phosphinothricin or Basta.
- [c23] 23. The method of claim 15 wherein the nucleic acid is inserted into the cereal tissue by inoculation with an

Agrobacterium containing said nucleic acid.

- [c24] 24. The method of claim 23 wherein the Agrobacterium inoculation is performed for less than about 20 minutes.
- [c25] 25. The method of claim 23 wherein the Agrobacterium inoculation is performed by contacting the transformable cereal tissue with filter paper saturated with the Agrobacterium containing the nucleic acid.
- [c26] 26. The method of claim 25 wherein the filter paper contacts the transformable maize tissue for between about 5 and about 60 minutes.
- [c27] 27. The method of claim 9 where in the Agrobacterium inoculation is performed by spotting the maize tissue with about 1 μ L of Agrobacterium containing the nucleic acid.
- [c28] 28. A transgenic cereal plant produced by the method of claim 15.
- [c29] 29. A method for increasing the transformation efficiency of a cereal transformation process comprising limiting the anaerobiosis effect during the inoculation of Agrobacterium to the transformable cereal tissue.